

FLOOR AND CEILING RECEIVING TRACKS FOR SEATING
METAL AND WOOD STUDS AND THE LIKE AND WHICH
IN PARTICULAR INCLUDE SPACED-APART PUNCH
HOLES ALONG FIRST AND SECOND SIDES THEREOF

5 BACKGROUND OF THE INVENTION

FIELD OF THE INVENTION

The present invention relates generally to stud receiving tracks and panels for use in building construction. More specifically, the present invention discloses a track receiving and seating system for use with a
10 vertically engageable wall stud, and which in particular provides the ability to arrange the studs in a predetermined spaced-apart fashion for constructing both interior and exterior support walls.

DESCRIPTION OF THE PRIOR ART

The prior art is well documented with various types of structural
15 support and attachment systems. A first example of this is set forth in U.S. Patent No. 6,418,694, issued to Daudet, and which teaches a floor system and method of construction for assembling a joist support. Of note, the system includes a joist rim that has at least one attachment tab integrally formed therein and to facilitate attachment of a joist to the joist rim. Reinforcing tabs
20 are provided adjacent to the attachment tabs for providing desired structural integrity to the attachment tab connection.

The Daudet system also includes a C-shaped joist that has a plurality of oval-shaped openings therein to enable components such as ducts, wires, piping, etc., to pass through. The joists are further provided with mounting

holes that are adapted to accommodate wire retainer members for supporting insulation between respective joists. The system may also include preformed blocking members that are sized to extend between adjacent joists and be attached thereto to provide lateral support to the joists.

5 U.S. Patent No. 5,669,194, issued to Colosanto, teaches a structural system for supporting a building and which includes a plurality of prefabricated lightweight steel framed bearing wall panels supporting hollow core concrete slabs which are joined with grout. The invention includes improved devices for attaching exterior finishing to exterior bearing walls without requiring a
10 studded non-bearing exterior wall. In relevant part, the exterior finish mounting device includes a deck stud channel which is mounted to a reinforcing bar by a channel clip and secured in grout by a gusset plate with a hole in it. The exterior finish is attached to the stud channel by screws which are also secured in the grout. Flat metal straps welded to the tops of double
15 studs eliminate the previously used threaded members with angled bearings, nuts and washers. The studs are ground at their ends to fit more perfectly within tracks and avoid the need for bearing plates. An open slide clip replaces the former splice member to allow for more latitude in positioning reinforcing bars and providing a better surface area for grout.

20 U.S. Patent No. 4,394,808, issued to Thorsell, teaches a fastener including a combination of a gang nail plate and a clip. The plate is driven into a gypsum board panel to attach itself thereto. The clip connects with the plate and extends beyond its side edge. A screw or nail is driven through an aperture

in the protruding end of the clip and in order to secure the panel to a supporting stud. The gang nail plate includes tangs protruding from the inner face thereof and a slot-forming transverse member protruding from the outer face. The clip is a flat, rectangular, spring steel plate formed with an upwardly inclined inner end, a flat outer end, and a downwardly inclined central portion. The clip's inner end is wedged into the slot to tightly connect the panel, plate and clip.

Finally, U.S. Patent No. 4,573,302, issued to Caretto, teaches a method of constructing a housing development in which the necessity for taking repetitious measurements and re-measurements through the various stages of construction is minimized. A construction surface in the form of the floor of a school or building in a shopping center associated with the housing development is initially established. Full scale dimensionally-stable, flexible templates are used at each building site location to mark the foundation footings and plumbing trenches required for the houses to be built.

In relevant part, and referencing Fig. 8 of Caretto, a wall section is constructed by an open rectangular frame constructed of front, back and end members. Upper and lower extending L-shaped members in particular include carriage bolts extending upwardly through horizontal surfaces thereof. Horizontal plates are attached by means of nuts in a conventional fashion to securely fasten the plate to the frame on all four sides of the house.

SUMMARY OF THE PRESENT INVENTION

A receiving track for use with a plurality of vertically extending and spaced-apart wall studs includes upper and lower extending elongated bodies

arranged in parallel opposing and spaced-apart fashion. The plurality of wall studs (such as including three-sided metal studs or rectangular wood studs) are arranged such that they extend between the bodies.

Each of upper and lower extending and elongated bodies exhibits a substantially “U” shape in profile, with a bottom extending face and first and second interconnecting and upwardly extending sides. A plurality of apertures are defined in each of the extending sides, in aligning fashion and between first and second extending ends of each of the bodies. Each of the pairs of apertures exhibit a specified diameter, a centerline location of each side extending aperture being spaced apart, in a preferred variant, a distance of four inches.

Pairs of extending tabs are defined from cutout portions taken from the bottom extending face of each elongated body. Each of the pairs of tabs are arranged in spaced-apart and opposing fashion and such that a center point between the pair of tabs is in alignment with a selected pair of side extending apertures. In a preferred embodiment, the pairs of tabs correspond to sixteen inch on-center spacings along the upper and lower extending bodies.

Each of the bodies further includes, in a preferred embodiment, a lip edge extending from at least one end of the bottom extending face. The extending lip edge engages a succeeding body placed in end-to-end extending fashion and may include one or more apertures for engaging an overlapping lip edge of a succeeding track and for receiving fasteners for securing the tracks together as well as to a floor or ceiling location.

A further variant teaches the application of an indicia, such as numbering, between first and second ends of the elongated body. In particular, a ten foot running length of elongated channel will include one foot numerical indications (ranging 1-10 feet), on one side thereof, whereas an opposite side will possess the same indicia in reverse order. In assembly, selected ends of the plurality of extending studs are seated upon the bottom extending face, between the pairs of upwardly extending tabs, and in substantially center aligning fashion between the selected pairs of apertures. At this point, fasteners are inserted through the apertures for securing the studs to the upper and lower extending bodies.

BRIEF DESCRIPTION OF THE DRAWINGS

Reference will now be made to the attached drawings, when read in combination with the following detailed description, wherein like reference numerals refer to like parts throughout the several views, and in which:

Fig. 1 is an environmental perspective illustration of spaced-apart floor and ceiling receiving tracks and between which are seated a plurality of vertically extending stud members;

Fig. 2 is a sectional perspective of a selected floor or ceiling receiving track and which illustrates spaced-apart apertures located in both of first and second upwardly extending sides, as well as pairs of opposing and seating tabs located upon an interconnecting and bottom extending face;

Fig. 3 is a sectional cutaway of a selected floor or ceiling receiving track, such as taken along line 3-3 of Fig. 1, and illustrating the seating engagement of a selected vertical stud member;

5 Fig. 4 is a further sectional cutaway of a pair of selected floor or ceiling receiving tracks and illustrating the seating engagement of a further selected vertical stud member for interengaging, in abutting end-to-end fashion, the pair of receiving tracks;

Fig. 5 is a cutaway view taken along line 5-5 of Fig. 2 and illustrating the engagement of the stud upon an associated pair of seating tabs;

10 Fig. 6 is a sectional perspective of a floor or ceiling receiving track and which illustrates an extending lip edge associated with a bottom extending face;

Fig. 7 is a side view illustration of first and second tracks according to the illustration of Fig. 6 and engaged in end-to-end abutting fashion and in
15 which their respective lip edges overlap;

Fig. 8 is a side illustration of a selected track engaged in end-abutting fashion with a substantially "L" shaped bracket portion according to a further variant of the present invention;

Fig. 9 is a sectional perspective of a floor or ceiling receiving track and
20 which illustrates an axially extending cut defined in a bottom extending face according to a further variant;

Fig. 10 is a further environmental perspective showing first and second receiving tracks, of the type illustrated in Fig. 9, in end-to-end interengaging fashion;

Fig. 11 is a sectional perspective of a selected floor or ceiling receiving track according to a yet further variant, similar to that previously represented in Fig. 2, and which again illustrates spaced-apart apertures located in both of first and second upwardly extending sides, as well as pairs of opposing and seating tabs located upon an interconnecting and bottom extending face and associated with each pair of spaced-apart apertures;

Fig 12 is a yet further environmental perspective illustrating first and second receiving tracks, such as shown in Fig. 4, in an abutting end-to-end engagement according to a preferred variant of the present invention;

Fig 13 illustrates a numerical indicia scheme placed along an elongate running length of receiving track and according to a further preferred embodiment of the present invention; and

Fig 14 is a succeeding illustration of a numerical indicia scheme placed along a bottom face of an elongated extending track.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to Fig. 1, an environmental view is illustrated at 10 in perspective of a track receiving and seating system. In particular, the present invention discloses upper 12 and lower 14 seating channels for use with a plurality of vertically extending and interengagable wall studs 16, 18, 20, et seq., and which in particular provides the ability to arrange the studs in a

predetermined spaced-apart fashion for constructing both interior and exterior support walls.

Each of the upper and lower seating tracks 12 and 14 defines an elongate extending and substantially “U” shaped body arranged in parallel
5 opposing and spaced apart fashion. The plurality of wall studs, 16, 18, 20, et seq., are illustrated as three-sided metal studs (see as for example studs 16 and 18 illustrated in the sectional cutaway illustrations of Figs. 3 and 4, respectively). Although not shown, it is further understood that wooden studs, exhibiting a rectangular cross section, could be substituted for the metal studs
10 illustrated and again be arranged such that they extend between the extending bodies 12 and 14.

Each of upper and lower extending and elongated bodies, as further illustrated in the sectional perspective of Fig. 2 by lower extending and selected body 14, exhibits a substantially “U” shape in profile, with a bottom extending
15 face 22 and first 24 and second 26 interconnecting and upwardly extending sides. Each of the elongated bodies 24 and 26 is further preferably constructed of a steel material, however it is contemplated that other types of material, such as durable and impact resistant plastics, can be employed within the scope of the invention.

20 A plurality of apertures are defined in each of the extending sides, in aligning fashion, and between first and second extending ends of each of the bodies. For example, pairs of aligning apertures are illustrated by corresponding pairs of inwardly curved and cross-sectionally aligning walls 28,

30, 32, 34, 36 and 38, these being defined along each of the extending sides 24 and 26, respectively, and extending along the channel body 14 in Fig. 2.

Each of the pairs of apertures exhibits a specified diameter, a centerline location of each side extending aperture being spaced apart, in a preferred variant, a distance of four inches. The selection of four inches is considered
5 important to a preferred embodiment, in that it equates to multiples of 8", 12", 16", 24", et seq. and which corresponds to the placement of vertically extending wall studs in such as 18" on-center and 24" on-center intervals and which are generally accepted to be industry standards for assembling interior
10 and exterior construction walls. It is further understood that other on-center spacing intervals of the rows of aligning apertures are possible, such as including 6" on-center spacings and the like.

Pairs of extending tabs are defined from cutout portions taken from the bottom extending face of each elongated body. In particular, and referencing
15 again the sectional perspective of Fig. 2, pairs of opposing tabs are illustrated at 40, 42, et seq. Each of the pairs of tabs are arranged in spaced apart and opposing fashion and such that a center point between the pair of tabs is in alignment with a selected pair of side extending apertures, in this example a center point between pair of tabs 40 aligning cross sectionally with pair of side
20 apertures 28 and a further center point between tabs 42 aligning with side apertures 36.

In one preferred embodiment, and as is again illustrated in Fig. 2, the pairs of tabs 40 and 42 correspond to sixteen inch on-center spacings along

each of the upper and lower extending bodies 12 and 14. Referring further to the further variant of elongated body 44 in Fig. 11, the same again includes a bottom face 46 and interconnecting and upwardly extending sides 48 and 50. Individual pairs of apertures are again shown in aligning fashion (and such as
5 in particular in 4" on-center spacing) at 52, 54, 56, 58, 60 and 62.

Corresponding to each pair of apertures, is an associated pair of spaced-apart tabs, i.e., tabs 64 for apertures 52, tabs 66 for apertures 54, tabs 68 for apertures 56, tabs 70 for aperture 58, tabs 72 for aperture 60 and tab 74 (second tab not illustrated) for apertures 62. While it is not necessary to provide pairs
10 of offsetting tabs for each and every pair of spaced-apart apertures, the same may be desirable in certain variants and such as where it is desirable to strongly reinforce the wall construction.

The tabs are further formed, in the variants illustrated, from cutout portions taken from the bottom extending face of the elongated body and as are
15 also illustrated in the axial cutaway illustration of Fig. 5. As is again referenced in each of Figs. 1 and 3-5, selected vertical extending studs, in this example again illustrated by three-sided metal (steel or aluminum) studs are provided and which seatingly engage between the selected pairs of the tabs, see as again is best shown in Figs. 3 and 4. Upon seating engagement of the stud
20 into the seating channels defined in the upper 12 and lower 14 extending bodies, fasteners (see screws 76) are applied through each of the associated pairs of aligning apertures and in order to secure the studs into place in on-center aligning fashion.

As is illustrated in Fig. 4, a pair of seating channel bodies are shown in abutting end-to-end fashion, and by which a stud 77 is inserted within the seating channel defined between the abutting ends of the first and second elongated bodies. Specifically, pairs of screws 76 are inserted into apertures
5 located typically at 3/8" spacing on center from the ends of the elongated bodies, and in order to secure the bodies together.

As best shown in Fig. 6, each of the bodies further includes, in a preferred embodiment, a lip edge 78 extending from at least one end of a bottom extending face 80 associated with a first example of an elongated body
10 82. The body again includes upwardly extending sides 84 and 86, aligning pairs of side extending apertures 88, 90, 92, 94, et seq., and selected and offsetting tabs 96.

As is further illustrated in Fig. 7, the extending lip edge 78 overlappingly engages a lip edge 98 (see in phantom) associated with a succeeding body 100 placed in end-to-end extending fashion. Although not
15 shown, it is understood that nails/screws or the like are hammered (or otherwise forcibly secured) through the overlapping lip edges 98 and 100 and in order to secure the running lengths of the extending channels in secure end-to-end fashion. Although further not shown, it is also understood that two
20 abutting ends of elongated channel can be secured, with only one having an extending lip edge and which would in this instance extend over a level edge of an associated bottom face and as is best represented in the examples of Figs. 2 and 11. Referring to Fig. 8, a further example of an elongated body is

illustrated generally at 102 and by which an associated and bottom extending lip edge 104 engages a bottom face of an angled bracket portion 106.

Referring to Figs. 9 and 10, each of the bodies, see for example at 108, further teaches an incision 110 extending axially inwardly from at least one end (see also lip edge 112) of a bottom extending face 114. As further is specifically shown in Fig. 10, an abutting and end extending face 116 of a succeeding body 118 seats within the incision 110 to overlap the first 108 and second 118 bodies in end-to-end extending fashion. It is also envisioned that only a single one of the elongated bodies may require an axial incision formed along its corresponding bottom facing surface and in order to adequately overlap and to be interengaged (such as again through the use of nail or screw fasteners) together.

Referring to Fig. 12, an illustration is shown in perspective of first 14 and second 14' elongated bodies arranged in end-to-end abutting fashion as substantially shown in Fig. 4. Of note, lip-edges 112 and 112', associated with bodies 14 and 14' respectively, overlap in substantially planar fashion (and unlike the incision seating manner illustrated in Fig. 10).

In this fashion, abutting pairs of vertical edges 120 and 122 of planar bodies 14 and 14' are arranged such that aperture pairs 124 and 126 are spaced at such as 3/8" distances on center from the edge boundaries of the abutting bodies (again defined by vertical edges 120 and 122). Succeeding pairs of apertures, e.g. at 128 for body 14 and at 130 for body 14', are spaced at 4" on center from the edge boundaries (and not preceding apertures 124 and 126) and

in order to maintain a correct 4" on center relationship with each succeeding pair of apertures.

Also, nails or other fasteners, see at 132, may be employed to secure together the extending and abutting ends of the lip edges, and such as prior to engagement of a vertical stud, and such as is also shown at 77 in Fig. 4. Referring again to Fig. 9, apertures 133 are formed at locations through the lip edge 112 and in order to facilitate application of the nails 132. It is also envisioned that a lip edge 112 exhibiting the apertures 133 will define an overlapping edge of such a pair of lip edges, the underlying lip edge not requiring apertures to facilitate application of the nails or other suitable fasteners.

Referring to Fig. 13, an illustration is shown at 134 of an elongated receiving track according to a further preferred embodiment of the present invention. In particular, the track repeats substantially the features previously described and including first 136 and second 138 extending sides, a bottom face 140, and end extending lip edges 142 and 144. Additional features include pairs of raised tab portions 146, 148 and 150 et seq., as well as aligning pairs of apertures 152, 154, 156, et seq.) as substantially described in the variant of Fig. 12.

In a particular variant, the elongated track is produced according to a length of ten feet and includes numerical foot marking indicia ranging from 1-9 along first extending side 136. As illustrated, a reciprocal and reverse numbering scheme extends along the second side 138 as shown. The

numerical indications for 0' and 10' are not shown in Fig. 13 but are understood to correspond to the opposite ends of the receiving track 134 and such that the track is reversible in use.

Referring further to Fig. 14, a variation 158 of an elongated track is illustrated and by which the reciprocal and reverse numbering scheme extends along the bottom face and in particular along opposite facing edges of a bottom face 160 associated with the track 158. It is also envisioned that pairs of raised tabs 160, 162, 164 et seq., can extend at equal one foot (12") or two foot (24") intervals, as well as extending at 16" spaced on center intervals.

It is also contemplated that other numbering or coding indicia schemes can be employed, such including color coding and the like and which employs a repetitive illustration of four or more colors. It is also contemplated that other lengths of receiving track, such as for example eight foot, twelve foot, etc., can be incorporated, each with a unique numbering or coding indicia scheme for determining placement of wall studs (not shown) and operating independently or in tandem with the aligned pairs of apertures and/or the opposing tabs.

Having described my invention, other and additional preferred embodiments will become apparent to those skilled in the art to which it pertains and without deviating from the scope of the appended claims. In particular it is envisioned that the receiving tracks can be used in variants including either both top and bottom extending lengths or, alternately, would

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also cover applications in which it is applied to only one of upper or lower ends
of the wall construction.

I claim: